

CLAIMS

1. Method for detecting and locating the difference in density and/or structure and/or chemical composition of a biological tissue (7) which is subjected to continuous illumination in a first determined band of frequencies, able to cause the tissue to generate a phenomenon of fluorescence, auto-fluorescence or luminescence in a second band of frequencies, characterized in that it comprises the steps consisting of:

- capturing an image of the biological tissue illuminated in this way, using colour video means provided with image sensors with a mosaic of pixels provided with filters of complementary colours,

- for each point of the image so obtained:

a) collecting data related to the energy received by each pixel, so as to reconstitute the image of the biological tissue (7),

b) amplifying the signal corresponding to the energy received in the second band of frequencies so as to characterize or cause to appear the said difference of the biological tissue (7) in the image obtained.

2. Method as in claim 1, characterized in that the data collected in the second band of frequencies is processed so as to characterize the structure difference obtained in a colour other than the colour naturally corresponding to this second zone of frequencies.

3. Method as in either of claims 1 or 2, characterized in that radiations are added to the band of frequencies of the illumination spectrum that are able to modify the fluorescence

spectrum to shift the fluorescence band of parasite fluorescence.

4. Device for detecting and locating the difference in  
5 density and/or structure and/or chemical composition of a  
biological tissue (7), characterized in that it comprises:

- means (1) able to illuminate the biological tissue (7)  
continuously with a light located in a first determined band  
of frequencies, so as to cause the tissue to generate a  
10 phenomenon of fluorescence in a second band of frequencies,

- colour video means (11) provided with image sensors  
with a mosaic of pixels provided with filters of complementary  
colours,

- capture and calculation means which, for each point of  
15 the image so obtained, are able to collect data related to the  
energy received by each pixel so as to reconstitute the image  
of the biological tissue (7),

- means for amplifying the signal corresponding to the  
energy received in the second band of frequencies so as to  
20 characterize or cause to appear the said difference of the  
biological tissue in the image obtained.

5. Device as in claim 4, characterized in that it  
comprises processing means (13) to process data collected in  
25 the second band of frequencies, so as to characterize the  
structure difference obtained in a colour other than the  
colour naturally corresponding to this second zone of  
frequencies.

30 6. Method for detecting and locating the difference in  
density and/or structure and/or chemical composition of a  
biological tissue subjected to continuous illumination in a  
first determined band of frequencies, able to cause the tissue

to generate a phenomenon of fluorescence, auto-fluorescence or luminescence in a second band of frequencies, characterized in that it comprises the steps consisting of:

- capturing an image of the biological tissue so  
5 illuminated using image-capturing means consisting of monochrome image sensors, namely a luminance sensor and at least one sensor provided with a filter of the colour corresponding to the colour of the fluorescence emitted during detection of a difference it is sought to detect,
- 10 - for each point of the image so obtained:
  - a) collecting data related to the energy received by each pixel so as to reconstitute the image of the biological tissue,
  - b) amplifying the signal corresponding to the energy  
15 received in the second band of frequencies so as to characterize or cause to appear the said difference of the biological tissue in the image obtained.

7. Device for detecting and locating the difference in  
20 density and/or structure and/or chemical composition of a biological tissue, characterized in that it comprises:

- means (1) able to illuminate the biological tissue  
(7)continuously with a light located in a first determined band of frequencies so as to cause the tissue to generate a  
25 phenomenon of fluorescence in a second band of frequencies,
- image-capturing means consisting of monochrome image sensors, namely a luminance sensor and at least one sensor provided with a filter of the colour corresponding to that of the fluorescence emitted during detection of a difference it  
30 is sought to detect,
- capture and calculation means which, for each point of the image so obtained, are able to collect data related to the

energy received by each pixel so as to reconstitute the image of the biological tissue,

- means for amplifying the signal corresponding to the energy received in the second band of frequencies so as to  
5 characterize or cause to appear the said difference of the biological tissue in the image obtained.